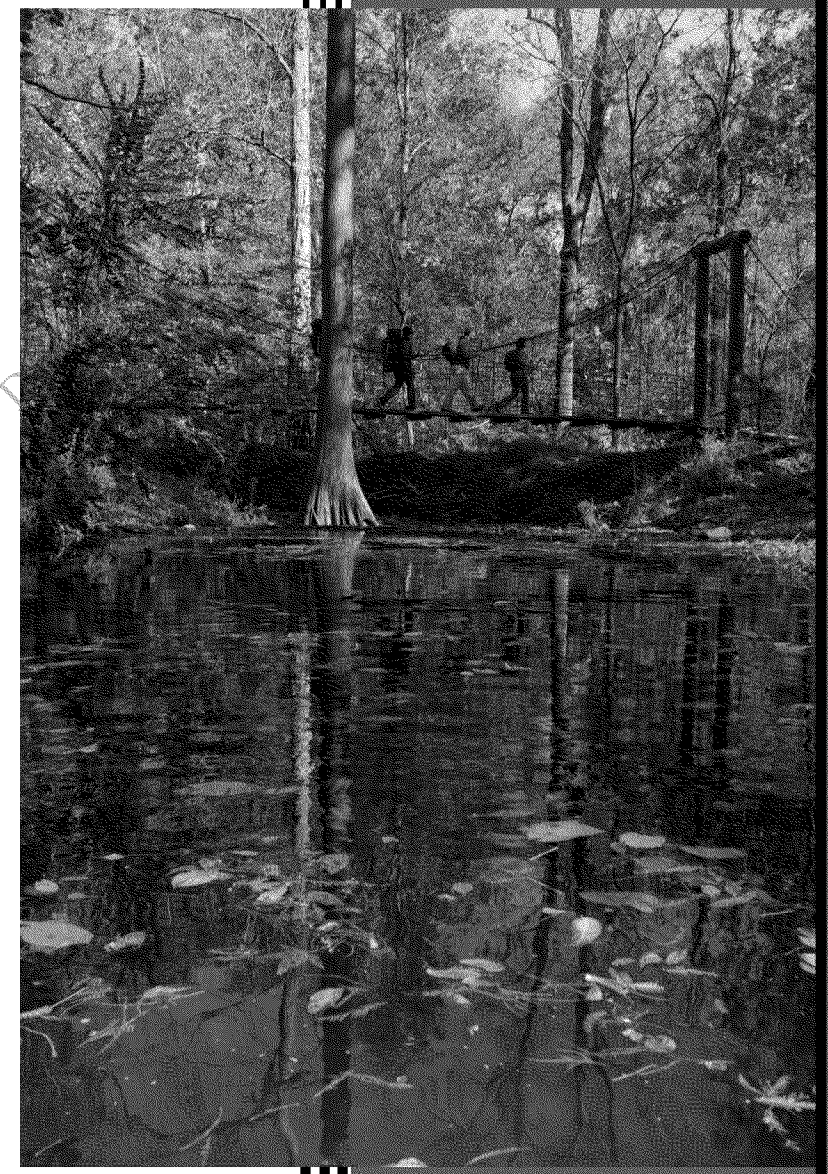
Arkansas Department of Environmental Quality

CWA SECTION 106 WORKPLAN

Office of Water Quality

2017 End-Of-Year Report DRAFT

Assistance Agreement: I-006050-17-0



Cane Creek State Park
Star City, Arkansas

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United States Environmental Protection Agency FY2014-2020 Strategic Plan

The EPA (United States Environmental Protection Agency) Strategic Plan for FY14-20 lists the strategic goals and objectives that are designed to meet the EPA Mission "To Protect Human Health and the Environment". The activities and tasks in this work plan are designed to help achieve Strategic Goal #2, "Protecting America's Waters" and meet the following objectives:

> ***Protect Human Health.*** *Achieve and maintain standards and guidelines protective of human health in drinking water supplies, fish, shellfish, and recreational waters, and protect and sustainably manage drinking water resources.*
>
> ***Protect and Restore Watersheds and Aquatic Ecosystems.*** *Protect, restore, and sustain the quality of rivers, lakes, streams, and wetlands on a watershed basis, and sustainably manage and protect coastal and ocean resources and ecosystems.*

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Office of Water Quality - Water Quality Management Planning Branch

The Water Quality Planning Branch, Office of Water Quality, consists of professional environmental scientists with advanced degrees and training in ecology, biology, geology, toxicology, limnology, aquatic entomology, ichthyology, fisheries biology, and zoology, among others. The staff has extensive experience in water quality related environmental processes. In addition, the staff has received training in topics such as; surface and ground water hydrology, modeling, permitting, water quality standards, quality assurance, total maximum daily loads, microbiology, geographical information systems, best management practices for abatement of nonpoint source pollution, and numerous aspects related to management.

Responsibilities of the Planning Branch include:

- Development and revision of Arkansas' water quality regulations, Regulation No. 2;
- Development and management of the list of impaired water bodies;
- Review of, and consultation in, use attainability analysis studies and reports;
- Developing, revising, reviewing, and consultation in total maximum daily loads;
- Assisting in the development of NPDES discharge limits;
- Review of NPDES point source discharge limits and applications;
- Review of storm water permits and applications;
- Review of state permits and applications;
- Review, permitting, and enforcement of whole effluent toxicity testing;
- Review, permitting, and consultation of short term activity authorizations;
- Review, permitting, and consultation of water quality certifications;
- Reviewing and consulting as it pertains to USCOE dredge and fill permits;
- Development and enhancement of ecoregion based biological assessment criteria;
- Investigations of the physical, chemical, and/or biological characteristics of surface and ground waters;
- Assists with enforcement and surveillance activities;
- Management of the state water quality monitoring networks:
- Management of ground water remediation activities;
- Oversees a portion of the Ground Water Protection Program;
- Management and implementation of the Office Of Water Quality grants; and
- Staff represent ADEQ are vital members of numerous, federal, state, local, academic, and watershed-based advisory boards and technical support committees.

Current staff includes:

Sarah Clem, MS[1], Planning Branch Manager

Jim Wise, MS	Mary Barnett, MS	Nathan Wentz, MS, CFP[2]
Roger Miller, BS, PG[3]	Melanie Treat, BS[4]	Lazendra Hairston, BS
Kristi Williams, MS	Katheryn Rose, MS	Brie Olsen, MS
Heather Saco, MS	Chris Naus, MS	Amanda Bates, MS, CES[5]

[1] Masters of Science
[2] Certified Fisheries Professional
[3] Professional Geologist
[4] Bachelors of Science
[5] Certified Environmental Scientist

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ELEMENT A:
PROGRAM MANAGEMENT and ADMINISTRATION

1. Budget and Program Preparation and Management:

   Ongoing activities include:
   Evaluation of the Office of Water Quality Program to assure efficiency, effectiveness, and compliance with CWA directives;
   Management and tracking of expenses and grant awards; and
   Routine staff meetings to discuss current activities, issues, and accomplishments.

2. Federal Grants Preparation and Monitoring:

   Revisions to the FY17 work plan were completed based on EPA comments.
   The FY18 priorities list has been reviewed and discussed with EPA.
   A draft letter detailing ADEQ's responses is currently being reviewed by management.

   Revisions to the FY14 State MIF grant and work plan were completed.
   Revisions to the FY15 State MIF and work plan were completed.
   Completion of the FY16 State MIF grant and work plan were completed.
   Revisions to the FY16 MIF grant/work plan to incorporate the FY17 NLA was completed.
   Preparation of the FY17/18 MIF grant was completed.
   Preparation of the FY18 base 106 grant was completed.

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3. Mid-Year and End-of-Year program evaluation:

   The FY17 Mid-Year reports was prepared and submitted to EPA.
   The FY17 End-of-Year reports were prepared and submitted to EPA.

4. Public Participation Activities as specified in 40 CFR 25.

   Public notices and request for comments continue for all WQMP updates, NPDES permit issuance, Regulation No. 2 revisions, Third Party Rulemaking activities, List of Impaired Waterbodies, 2018 assessment methodology, and TMDLs that were either initiated or completed.

5. Revised Continuing Planning Process (CPP), if needed.

A workgroup has been established to develop a list of recommendations of revisions to the CPP. The work group has been meeting once a month and has completed their review through chapter four. The plan is to go thru the entire CPP by 2017 and have a "Preliminary Working Draft". Then establish a larger stakeholder group and go through it again. It is projected that a final draft will be available in late 2017 or early 2018.

ELEMENT B:
WATER QUALITY MANAGEMENT PLANNING

Program Activity	Commitment	1st half Year[1]	2nd half Year[2]	Total
Water Quality Management Planning				
TMDL Documents Reviewed	as needed	0	2	2
UAA Documents Reviewed	as needed	6		
WER Documents Reviewed	as needed	0	1	1
Third Party Regulation Revision Request Reviewed	as needed	0	3	3
Toxicity Samples Collected		NA	NA	NA
Sites Visited with Toxicity Samples		NA	NA	NA
401-404 Program				
Hearings	as needed	0	0	0
404s Certified	as needed	22	18	40
404s Denied	as needed	0	0	0
404s Waived	as needed	1	1	2
Nationwide Permits	as needed	45	85	130

1 = October, 2016 through March 31, 2017
2 = April 1, 2017 through September 30, 2017

Designated Use Assessment and Total Maximum Daily Load (TMDL) Program

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Review TMDLs submitted by outside entities:

- The Bayou DeView and Cache River TMDL were public noticed. ADEQ has reviewed the comments. At this time, ADEQ has suspended the work on this TMDL because all but one stream reach has been removed from the 303d list. Water sampling has begun on the one stream reach remaining.
- ADEQ received the revisions and data from the contractor on November 2, 2016 for the Bayou Bartholomew TMDL. At this time, ADEQ has suspended the work on this TMDL because all but one stream reach has been removed from the 303d list. This reach has an ambient monitoring station on it and is sampled for metals every other month.
- The TMDL for Stone Dam Creek, Conway, is currently being considered for revision. The discharge from the City of Conway was relocated from Stone Dam Creek to the Arkansas River. Therefore, the loadings and allocation in the TMDL are no longer accurate.
- El Dorado Chemical Company has requested and has begun revising the TMDLs associated with their receiving streams.
- SWEPCO has requested and begun revising the TMLDs associated with their receiving streams.
- ADEQ continues to participate in the work group established to develop TMDLs for Illinois River listed stream reaches.

Water Quality Regulation Program

UAAs and other proposed water quality standard changes reviewed:

- Waldron – Minerals on Poteau River – on hold
- Fayetteville - Minerals on White River – approved by Arkansas Pollution Control and Ecology Commission
- TURK Plant - Minerals on Red River – approved by Arkansas Pollution Control and Ecology Commission
- TURK Plant - Temperature and TDS on Little River - EPA approved
- Harrison/Yellville - Minerals on Crooked Creek – submitted to EPA
- GP-Crossett - Use investigation on Coffee Creek and Mossy Lake, etc.
- Huntsville – Minerals on Town Branch, Holman Creek, War Eagle Creek – on hold
- Vulcan Construction Materials-Minerals on tributary to Spring River
- El Dorado Chemical Company – Aquatic Life Use

Water Effects Ratios (WER) reviewed/discussed:

- Shumaker - Copper

3rd party rulemakings were completed:

- Fayetteville: Regulation No. 2 amend the mineral standards for chlorides, sulfates, and total dissolved solids (TDS) for a portion of the White River from Noland WWTP to 0.4 miles downstream (WR-02) and a portion of the White River from WR-02 to WHI0052
- SWEPCO: Regulation No. 2 amend the mineral standards for total dissolved solids (TDS) for a portion of the Red River from the mouth of the Little River to the Arkansas/Louisiana state line.
- Haliburton: Regulation No. 2, through the Environmental Improvement Project (EIP) process, temporarily revise the standards for sulfates and total dissolved solids (TDS) for: Chamberlain Creek from headwaters to confluence with Cove Creek, Cove Creek from the confluence with Chamberlain Creek to the Ouachita River, Lucinda Creek from the confluence of Rusher Creek to the confluence with Cove Creek, Rusher Creek from the confluence of the East and West Forks to confluence with Lucinda Creek, Reyburn Creek from headwaters to confluence of Francois Creek, and Scull Creek from a point approximately 350 feet upstream of Clearwater Lake to Clearwater Lake (including Clearwater Lake) and from Clearwater Lake dam to confluence Reyburn Creek.

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Permitting Program

- The number of 401 permits and 404 permits reviewed is listed in the above table.
- Continued tracking WET results from NPDES permittees; review NPDES permits; and implemented the following toxicity testing. This is a continual process.
- SWPPP and Storm Water Permits are reviewed as needed.
- NPDES permits are reviewed prior to the public comment period.

Ambient Toxicity Program

ADEQ is not participating in the EPA Ambient Toxicity sampling program at this time.

Planning, Assessment, and Data Management

7. Revise Water Quality Monitoring and Assessment Program, if necessary.

   The document was reviewed and preliminary revisions have been completed. It is anticipated that a revised document will be completed and delivered to EPA by mid-2018.

8. Revised assessment methodology for the listing/de-listing of waterbodies.

   A three phase process for public input and involvement in developing the 2018 Assessment Methodology has been implemented. Phase I consists of gathering input from the public. Phase II includes a series of stakeholder workgroup meetings where stakeholders will consider all input gathered during Phase I. The revised assessment methodology will then be public noticed, Phase III.

   Currently, Phase I has been completed. Several workgroup meetings have been accomplished and a partial draft assessment methodology has been developed. The assessment methodology public noticed in October, 2017. .

9. The QAPP was delivered to EPA. The QAPP was approved March 2, 2016.

10. All ADEQ water quality data is uploaded to the STORET database on a routine basis.

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ELEMENT C:
PERMITTING and ENFORCEMENT PROGRAM

NPDES Program Activity				
	Commitment	**1st half Year[1]**	**2nd half Year[2]**	**Total**

Permits Issued				
Major Industrial	7	5	2	7
Major Municipal	15	9	6	15
Minor Municipal	48	24	23	47
Non-Municipal Minor	71	38	45	83
Minor Federal	0	0	0	0
General Permits	As needed	256	260	516
Construction Permits	As needed[3]	-[3]	14	14+
Carry-Over Permits Issued* **				
Audits				
Pretreatment Audits	As needed	0	0	0
Water Quality Modeling				
Water Quality Management Plan Update	As needed	28	33	61
Desk Top Modeling Conducted/Reviewed	As needed	49	77	126
Field Verified Conducted/Reviewed	As needed	0	0	0
Calibrated Conducted/Reviewed	As needed	0	0	0

1 = October, 2016 through March 31, 2017
2 = April 1, 2017 through September 30, 2017
3 = Combined with General Permits

Enforcement Actions				
		1st half Year[1]	**2nd half Year[2]**	**Total**
NPDES				
Informal (warning letters)		174	122	296
Formal	DAO	1	0	1
	CAO	20	16	36
	NOV	3	2	5
Referral				
State Permits				
Informal		121	187	308
Formal	DAO	0	0	0
	CAO	2	3	5
	NOV	0	1	1
Enforcement Management System draft document submitted				

1 = October, 2016 through March 31, 2017
2 = April 1, 2017 through September 30, 2017

ELEMENT D
COMPLIANCE MONITORING

	Commitment	**1st half Year[1]**	**2nd half Year[2]**	**Total**
Program Activity				
Compliance Evaluation Inspections				

Major Municipal	Once/two years	10	28	38
Major Non-Municipal	Once/two years	5	12	17
PCI/Audits	Two/five years	1	6	7
Minor Municipal	Once/five years	37	20	57
Minor Non-Municipal	Once/five years	32	29	61
Compliance Sampling Inspections				
Major Municipal	4/year	0	4	4
Major Non-Municipal	4/year	1	3	4
Minor-Municipal	8/year	3	6	9
Minor Non-Municipal	4/year	2	2	4
OTHER				
Construction Storm Water	Ten percent/year	122	105	227
Industrial Storm Water	Ten percent/year	114	118	232
Complaints Investigated	As needed	204	250	454
Fish Kills Investigated	As needed	2	4	6
Emergency Response Actions	As needed	8	5	13
Ambient Water Samples collected	As needed	>1000	>1000	>2000
Sanitary Sewer Overflow Inspection	As needed	46	45	91
Reconnaissance Inspections	As needed	22	21	43
Compliance Assistance	As needed	0	0	0
Other	As needed	23	25	48

1 = October, 2016 through March 31, 2017
2 = April 1, 2017 through September 30, 2017

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ELEMENT E: GROUNDWATER MANAGEMENT PLANNING

Work Plan Element A: Administration of 106 Groundwater Protection Program

Activities for FY2017:

1. Review/develop 1 ADH work plan (2-year) and evaluate 2 mid-year and 2 annual reports. Prepare the annual MOA for106 assistance and coordinate its routing and approval.

2. Develop 1 ADEQ Groundwater Program Work plan (2-year); compose 2 mid-year reports and 2 end-of-year reports.
3. Maintain daily work logs to track accomplishments and compile counts of deliverables.

Period: October 1, 2016 through March 31, 2017

Activity 1: The groundwater section manager (manager) composed a memo to the Director through the Water Division detailing the agreement (MOA) with ADH, the purpose of the quarterly Wellhead Protection Program remittances, and its general groundwater protection objectives.

The manager also reviewed 1 semiannual report and approved 2 invoices for the WHPP/Source Water Protection activities. The manager categorized/sorted previously logged tasks and completed the 2016 EOY report. Per a request from the branch manager, the manager compiled highlights and challenges for FFY2017 in preparation for the scheduled EPA conference call. The manager researched and compared previous reports to identify a discrepancy between the work plan and subsequent progress report(s).

Count: 7

Activity 2: Work plan review/revision was not required during the reporting period.

Count: 0

Activity 3: The manager made weekly updates to the tracking spreadsheet to document accomplishments of groundwater section in the various work plan categories.

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Count: 24

Period: April 1, 2017 through September 30, 2017

Activity 1: The groundwater section manager (manager) reviewed 1 EOY report and on semiannual report and approved 3 invoices for the WHPP/Source Water Protection activities. The manager prepared the annual MOA detailing 106 assistance to the ADH and coordinated its routing and approval through the various management levels. The manager categorized/sorted previously documented activities and completed the 2017 EOY report.

Count: 6

Activity 2: 1 mid-year report and 1 End-of-Year report were prepared; work plan review/revision was not required during the reporting period.

Count: 2

Activity 3: The manager made weekly updates to the tracking spreadsheet to document accomplishments of groundwater section in the various work plan categories.

Count: 24

Work Plan Element B: Groundwater Resource Characterization

Activities for FY2017:

1. Sample ambient monitoring areas as scheduled; approximately 40 samples for the major cations, anions, trace metals, nutrients and TOC with VOCs and/or SVOCs if warranted.

2. Expand PWS well sampling, coordinated with the ADH Source Protection Program.

3. Database upkeep: Analytical results will be hand-transcribed from MS Word to Excel as needed, for each of the nine monitoring areas to be sampled during the period.

4. One field / classroom training course for one hydrogeologist, on groundwater monitoring network design, new GW sampling techniques, applications, and equipment.

Period: October, 2016 through March 31, 2017

Activity 1: The manager installed and calibrated new sensors and serviced other equipment in preparation for sampling in the Ouachitas, including a group of new PWS wells recently added. He updated and reorganized the GIS projects (changed data source paths and folder structures) used for planning within the various sampling areas, and then printed maps for field use. He updated site designations and attributes for sites in the Frontal Ouachita and Pine Bluff ambient GW sampling areas, and made location corrections for other ambient monitoring sites. Finally, he developed procedures for exporting sites to mobile mapping applications for future use with GPS capability during sampling.

The manager accompanied Planning Branch staff for sampling runs in the Lake Ft. Smith area, the Ouachita ERW sampling area, Dequeen, Norfork Lake, plus the Little Rock ERW and Hot Springs ERW runs (day trips). He also compiled and transmitted spreadsheets listing field parameters and site data to the ADEQ lab (electronic Chain of Custody documents).

Considerable time was spent during the reporting period considering the possibility of collaborating with the USGS on their National Groundwater Monitoring Network (NGWMN) initiative, per a request from the Program Manager. Toward that end, the manager attended an informational webcast and reviewed numerous documents detailing the program's history, structure, cooperation requirements, and site selection guidance in the following weeks. He also examined existing documents in the GW section archive and developed queries in MS Access for analyzing the ambient GW monitoring sites database to begin identifying areas of insufficient coverage as well as redundant and non-essential sites for possible elimination. These activities are aimed at overhauling and streamlining the network to better accommodate existing staff and evolving long-term objectives.

The manager communicated with the NGWMN program manager and ADEQ computer services division regarding data management requirements and resources needed for eventual development of key web services (in-house or outsourced). Toward that end, the manager tested several existing portals for suitability.

Finally, the manager compiled disparate basemaps and spreadsheets in the groundwater section to create a GIS database of spring locations and basic attributes to support a potential wildlife conservation project in five counties in north Arkansas, and began work on a groundwater flow calculation spreadsheet in Excel, using built-in development tools to select parameter values and establish constraints.

Count: 12

Activity 2: The manager researched prospective PWS wells for addition to the network. As a result, five new Public Water Supply well sites were identified and contacted the owners during the reporting period; sampling is scheduled for the present quarter. Ancillary data (casing, screen, grout, and reported yields) for the database will be collected pending further discussion with the owners.

Count: 5

Activity 3: No manual transcription of sampling results was required during the reporting period.

Count: 0

Activity 4: The manager attended training on a variety of groundwater assessment and protection subjects including geospatial and statistical optimization techniques for characterization and remediation, implementation of performance measures for remediation, and case studies assessing the effectiveness of GAC injection in dissolved organic contaminant plumes. He also reviewed journal articles on subjects ranging from geochemical factors controlling Uranium concentrations in shallow alluvial aquifers to porosity development mechanisms in Karst terrain, and reviewed a group of geologic publications to research the origin of silicic characteristics of strata in the Ouachitas, in support of an investigation of anomalous stream pH values.

Count: 6

Period: April 1, 2017 through September 30, 2017

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Activity 1: The manager compiled and updated owner contact numbers and maps, arranged for sampling of 2 new sites, and then sampled the Frontal Ouachitas monitoring area. He conducted sampling in the Ouachita ERW project area 5 times during the reporting period, collecting approximately 55 water quality samples and conducted follow up file management tasks. The manager also conducted Google Earth searches and analyses to identify and prioritize 15 potential sites for a planned new groundwater monitoring area. He continued preparing for participation in the USGS National Groundwater Monitoring Program, learning the NGWM objectives and sample site selection criteria. Additional follow up activities included scanning and georeferencing a geologic work map, determining attributes for the database and other GIS tasks. He also edited site coordinates in four folders containing field navigation files (Google Earth) to correct erroneous site locations. The manager also assisted with sampling 3 lakes in north Arkansas to support the ongoing lakes assessment project. Finally, the manager worked to gain familiarity with the new CDX Workspace grant application procedure in anticipation of an eventual grant submission for the NGWMN program.

Count: 37

Activity 2: The manager contacted officials and sampled 2 new PWS wells in Pulaski County, adding pertinent construction data and other information into the database. The manager also reviewed potential new sites for an anticipated collaborative project assessing springs in north Arkansas.

Count: 3

Activity 3: No manual transcription of sampling results was required during the reporting period.

Count: 0

Activity 4: The manager attended training on a variety of groundwater assessment and protection subjects including redox zonation, the emerging EnviroInsite software (data visualization) suite, Biogeophysical techniques for Subsurface characterization (GWF webcast), and groundwater related technical presentations at the 2017 Exchange Network conference.

Count: 4

Element C: Groundwater Quality Planning

Activities for FY2017:

1. Assist other agencies on groundwater resource development and management decisions that are consistent with interdepartmental and statewide protection mechanisms, taking both overlapping areas and gaps in protection into consideration, and serve on state panels which coordinate groundwater related issues, as needed.
2. Conduct 2 meetings of the task group of ADEQ divisions that have groundwater protection responsibilities,
3. Assist other state agencies in developing groundwater standards for the State; provide information and assistance for developing groundwater standards on request.

Period: October, 2016 through March 31, 2017

Activity 1: Per a request from the USGS, the manager attended the initial meeting of the Mississippi Alluvial Plain (MAP) Regional Water Availability Study planning group. Prior to the meeting, the manager discussed the main objectives and solicited input from other Planning Branch staff (surface water) on specific concerns in the area and organized the information for an informal presentation at the meeting, held in Greenville, MS. The manager reviewed materials received and discussed results from the meeting upon return.

Activity Count: 1

Activity 2: No meetings in furtherance of this activity were necessary during the report period.

Activity 3: No assistance was requested per this activity during the reporting period.

Period: April 1, 2017 through September 30, 2017

Activity 1: No requests for assistance in this category were received during the reporting period.
Activity 2: No meetings in furtherance of this activity were necessary during the report period.
Activity 3: No assistance was requested per this activity during the reporting period.
Activity Count: 0

Element D: Addressing Gaps in Groundwater Protection

Activities for FFY2017:

1. Answer contamination complaints and oversee groundwater assessment and remediation projects as required.
2. Assist other ADEQ sections with groundwater contamination assessment and remediation.

3. Assist ADEQ divisions and State agencies on developing guidelines, enforcing regulations, and developing comprehensive programs for groundwater protection. Assist other agencies via telephone and email and attend interagency meetings as needed.

Period: October, 2016 through March 31, 2017

Activity 1: The manager responded to several miscellaneous inquiries as required, and responded to one complaint involving an owner's concerns about proposed road construction near a domestic well. The manager examined topography and geologic maps and made follow-up calls to schedule a meeting to consider adding the well to the Frontal Ouachitas monitoring area. Pending response from the owner, the well will be sampled during the 2017 assessment (currently underway).

Activity Count: 1

Activity 2: The manager reviewed a groundwater investigation work plan and coordinated with the ADEQ permit engineer regarding drilling and installation of a monitoring network at a spray irrigation field. The manager scheduled a site visit with the consulting geologist and site managers in order to observe drilling and testing procedures.

The manager discussed well offsets implemented in response to adverse geologic conditions encountered, and other issues specific to the drilling technique. He then prepared notes from the site visit and presented a summary of the results and the planned implementation schedule to other ADEQ team members at a later meeting.

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The manager also responded to a request from another permit engineer, recommending wording regarding groundwater monitoring requirements for a permit under revision.

Per request, the manager reviewed and commented on a groundwater monitoring plan being implemented at a former railroad loading rack area under investigation.

Finally, the manager assisted other ADEQ geologists with necessary unit conversions of lab results for proper production of hydrochemical plots (e.g. Stiff diagrams) used to display and compare groundwater chemistry data from groups of wells. He subsequently wrote a 1-page explanation of the stoichiometric relations (electrical balance) underlying the required conversions, for their future reference.

Count: 6

Activity 3: Per a request from the University of Arkansas Agricultural Extension Service, the manager reviewed and commented on the "Resource Extraction" chapter of the Arkansas Non-Point Source Pollution Management Plan revision currently nearing completion under their management.

The manager conducted a review of the local hydrology (reports, maps, cross sections) and provided an assessment, for a proposed highway bypass possibly including a tunnel, to be constructed within the (estimated) recharge area for thermal springs in the HS National Park.

Count: 2

Period: April 1, 2017 through September 30, 2017

Activity 1: The manager provided information and recommended actions per a request by the Legal department at ADEQ regarding solvent detection in groundwater beneath a manufacturing facility. No other requests for assistance were received during the reporting period.

Activity Count: 1

Activity 2: The manager discussed responses to comments with a permit engineer regarding a proposed permit modification at a facility in north central Arkansas, and set initial scheduling for additional coordination, reviewed and commented on groundwater pump-and-treat permit per a request from another permit engineer. Finally, the manager studied maps and aerial imagery and queried an online well construction database to compile well depths and water level estimates for an area in the old bauxite mining district in Saline County per a request from a geology supervisor in the ADEQ Office of Land.

Count: 3

Activity 3: No requests for assistance in this category were received during the reporting period.

Element E: Technical Assistance and Outreach

Activities for FY2017:

1. Assist ADEQ staff, other agencies and organizations in the technical aspects of groundwater quality management; examine issues and provide written recommendations.
2. Answer queries, transfer information on groundwater resources, or refer to proper agency.
3. Distribute analytical results and pertinent information to ambient program well owners via letter after each sampling event. Approximately 200 sampling events / follow-up mailings.
4. Distribute information about the 106 groundwater protection program and similar initiatives in state and present talks at water conferences and other technical forums.

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Period: October, 2016 through March 31, 2017

Activity 1: The manager sought input and studied manufacturer's and other publications regarding pH sensor design details and reliability, known sources of error and interference, and how to recognize incipient failure. The manager provided a written account of physical, chemical and geological conditions as possible causes of low pH in surface waters, specifically the pronounced solidification of clastic sediments in the Ouachita Mountains.

The manager reviewed one permit application for installation and operation of a groundwater treatment system in an area affected by a DNAPL plume and provided recommendations and comments to the ADEQ requestor.

Count: 3

Activity 2: The manager performed GIS analyses to respond to a query about PWS locations/types in an area of interest, and replied to an inquiry from a large consulting firm regarding groundwater classification rules and established groundwater protection zones if any, in Arkansas.

The manager assisted a testing laboratory with an inquiry about applicable screening levels for soils, located the pertinent information, and directed the requestor to the desired resource.

The manager answered queries from a consultant planning sampling near an old UST, and a landowner with a spring discharging water having high dissolved iron concentrations and arranged to have an inspector visit the subject site. The manager also responded to a well owner in central Arkansas inquiring about the potential effects of construction activities near a domestic well. Finally, the manager assisted a consultant with a question about Public Water Supply well permitting procedures and requirements in Arkansas.

Count: 7

Activity 3: The manager transmitted groundwater data (spreadsheets) from the ADEQ database to one requestor. The manager also advised one requestor about techniques for querying EPA and USGS online water quality databases.

Count: 2

Activity 4: No activities under this category were required during the reporting period.

Period: April 1, 2017 through September 30, 2017

Activity 1: The manager compiled historic nitrate data in the Buffalo River watershed from STORET, per a request from a coordinator in the Planning Branch, creating a group of tables and time-series graphs. The manager met with the Legal office to set a schedule and criteria for monitoring at a manufacturing facility with an unregulated contaminant issue in groundwater, and exchanged emails and held a follow up meeting to finalize the plan. The manager assisted with one general question related to groundwater during the reporting period.

Count: 8

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Activity 2: The manager assembled/sent information on local water tables, seasonal upwelling, and other identifiable factors, and provided a letter to a requestor in north Arkansas to assist them with documenting a seasonal flooding problem as being naturally-occurring groundwater upwelling rather than failing water supply lines. The manager wrote queries, made tables, and sent other information from the ADEQ ambient groundwater database per a request from an out of state researcher from the USGS. The manager also downloaded and edited tables of spring data for use in planning for a possible collaborative project in north Arkansas.

The manager discussed his requirements for Digital Elevation Models and derived products for terrain analysis with the ADEQ GIS manager, doing comparisons and testing parameter combinations for generating hillshaded DEMs, to help to plan a large download from the AR GIS repository.

The manager corresponded with several laboratory managers to answer a query from and out-of-state groundwater researcher searching for information and services for ultrafiltration.

Finally, the manager responded to a request for data from a consulting firm, constructing queries and compiling requested information.

Count: 11

Activity 3: Approximately 7 sets of results were provided on 3 occasions during the reporting period.

Count: 3

Activity 4: No activities under this category were required during the reporting period.

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